

CLAIMS

1. Retractable roof system for a motor vehicle having a structure (50), the retractable roof system comprising at least a front roof panel (3, 40) and a rear roof panel (2, 48), said roof panels being movable in relation to each other along a longitudinal direction (58) between:

5 a flush position in which the panels are placed substantially at the same level as each other, the front roof panel thus being located in front of the rear roof panel, along said longitudinal direction; and,

10 an off-set position in an upward direction in which the roof panels are placed at least partially one above the other;

one of these front and rear panels bearing a group of front levers (62) and a group of articulated rear levers (64), so as to tip over between:

15 a low position in which the corresponding is substantially flush with a surround part of the structure (50) of the vehicle;

20 and a high position in which said corresponding panel is off-set in an upward direction in relation to the level of its flush position;

characterized in that:

- said front (62) and rear (64) group of levers are pivotally mounted in relation to said roof panel (48) which bears them;

25 - at least one of said roof panels (48) bearing the lever groups (62, 64) and the other roof panel (40) comprises driving means (76, 78, 88) for driving the lever groups and one of the panels, together:

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either from the front towards the rear, along a distance ensuring the roof panel in question moves from its flush position to its off-set position in an upward direction,

- 5 or from the rear towards the front, along said distance, but in the opposite direction, to ensure the same roof panel moves from its off-set position to its flush position; and
- 10 - the lever groups (62, 64) engage, under the control of the driving means (76, 78, 88), guides (42, 44, 46) extending essentially substantially parallel to said longitudinal direction, said guides being adapted for:
- 15 during the controlled displacement of the lever groups from the front towards the rear, guiding their tipping over movement from the flush position of the corresponding panel to its off-set position; and
- 20 during the controlled displacement of said lever groups from the rear towards the front, guiding their tipping over movement from the off-set position of the corresponding panel towards its flush position.

2. Retractable roof system as set forth in claim 1, characterised in that the lever groups (62, 64) individually comprise a curved lever comprising a first

25 arm (62a) rotatably articulated on the corresponding roof panel (48) and fixedly attached via an elbow to a second arm (62b), which engages one of said guides (42, 44, 46), in order to guidingly drive it.

30 3. Retractable roof system as set forth in claim 1 or 2, characterised in that the guides comprise runners provided with first grooves (46) in which the lever

groups (62, 64) slide, the runners locally having deflected slips (70, 72) extending obliquely in relation to the horizontal and in relation to said longitudinal direction, along a sufficient length to receive,
5 individually, a part of said lever groups, so that once engaged in these deflected slips, the corresponding lever groups move, by pivoting, from one of their high or low positions towards the other position.

10 4. Retractable roof system as set forth in claim 3, characterised in that:

- one of the panels (40) is slidably mounted in relation to the other (48) along said longitudinal direction (58), along second grooves (42, 44) of said
15 runners;

- at least some of the levers beard by the corresponding panel at least comprise a slider (66) slidably mounted in the first corresponding groove; and
- these driving means comprise a driving hook (78)
20 having a driving recess (80) adapted for receiving said slider (66) and driving it along the corresponding guide (46), the recess extending frontwards via a driving wall (82) adapted for driving the corresponding slider rearward, along said first groove (46), this recess
25 extending rearward via a short driving pin (84) making an inlet (86) for the slider, via the rear of said driving hook, so that the short driving pin drives the slider (66) forward as long as it engages the first groove (46) substantially along said longitudinal direction, but
30 extricating from the slider when the latter engages in the deflected slip (70, 72) of said first groove that it encounters, this deflected slip thus being located in the

extension of the groove and making an obtuse angle (α) with it so that the slider can engage in the direction of its drive.

5 5. Retractable roof system as set forth in claim 4, characterised in that:

- the sliders (66, 68) are disposed on the second arm (62b) of at least some of the levers (62, 64);
- said driving means (76, 78, 88) extend along said
10 longitudinal direction; and
- the front panel (40) is slidably mounted in relation to the rear panel (48) in order to move under it, the deflected slips (70, 72) of each first groove (46) being, for this purpose, oriented upwards and the lever groups
15 being linked to the rear panel under which the first groove extends.

6. Retractable roof system as set forth in any one of the previous claims, characterised in that the driving means
20 comprise, towards their rear end, a push button (76) adapted for engaging at least one lever from the lever groups (62, 64), when the latter is in the low position and drives it rearward along with itself, in the direction of displacement of said driving means (76, 78,
25 88).

7. Retractable roof system as set forth in claim 5 or in claim 6 depending on claim 4, characterised in that, the front roof panel (40) being slidably mounted in relation
30 to the rear panel (48) in order to move under it, the driving means of the front roof panel comprise, towards their rear end, a second driving pin (88) adapted for

fully engaging, in the corresponding deflected slips, the front lever group beard by the rear roof panel, once these levers are free from the corresponding short driving pin, consecutively with a forward sliding of the front roof panel, so that the rear roof panel then moves into its flush position.

8. Retractable roof system as set forth in claim 3, characterised in that, the front roof panel (40) being slidably mounted in relation to the rear panel (48) in order to move under it, the driving means of the front roof panel comprise, towards their rear end, a second driving pin (88) adapted for fully engaging, in the corresponding deflected slips, the front lever group fitted to the rear roof panel, consecutively with a forward sliding of the front roof panel, so that the rear roof panel then moves into its flush position.

9. Motor vehicle equipped with a retractable roof system as set forth in one of the previous claims.